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EXAMINER	
TAKAOKA, DEAN O	
ART UNIT	**PAPER NUMBER**
2817	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/082,616	PERREAULT ET AL.	
	Examiner	Art Unit	
	Dean O Takaoka	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10,14-33,35-43,45-61 and 67-78* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,14-24,26-33,35,37-48,50-61,67-72,74,75 and 77* is/are rejected.

7)☒ Claim(s) *25,36,49,73,76 and 78* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. *9/28/04* .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

i) Claims 54 and 55 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 54 recites "*a pair of conductors that are substantially capacitively coupled with each other but not with the first conductor, wherein the first conductor is coupled to a first one of the pair of conductors*". The recitation of the claim appears not enabling. The limitation of the claim first recites "*a pair of conductors are substantially coupled with each other* <u>*but not with the first conductor*</u>". The limitation of the claim then recites "*wherein the first conductor is coupled to a first one of the pair of conductors*". It appears that the limitations are contradictory, thus the claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

ii) Claim 70 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

It does not appear the specification and/or drawings disclose or show parasitic impedance cancellation (claim 70). The Applicant is invited to show where in the disclosure support for the claims may be found.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 – 3, 10, 15 – 17, 19, 22, 27, 28, 32, 33, 38 – 40, 43, 68 and 69 are rejected under 35 U.S.C. 102(b) as being.anticipated by Veisz et al. (US 4,451,804).

Claim 1:

Veisz et al. shows a capacitor (8) having first and second ends and a circuit coupled to the capacitor (coupled windings 6,7 and/or associated circuitry shown in Figs. 5 and 8) the circuit including discrete magnetically coupled windings (bandpass or notch filters shown in Figs. 1 and 9 or bandpass filters shown in Figs. 12 – 15) such that the magnetic induction of the discrete magnetically coupled windings provides capacitor path inductance cancellation (where resonance is shown in Fig. 2, thus providing capacitor path inductance cancellation – col. 4, lines 44-59).

Claim 2:

Where the coupled windings are discrete (abstract).

Claim 3:

Where the coupled windings are integrated with the capacitor (where the term integrated is broad, where Veisz et al. shows the discrete coupled windings and discrete capacitor combined to form the resonant filter, thus integrated).

Claim 10:

Where the coupled windings include a structure having magnetic cores (17 – Fig. 16 and iron core – col. 2, line 61).

Claims 15 and 17:

Where the coupled windings include first (6) and second (7) coils and a first terminal (1) coupled to a first end of the first coil (6) and a first end of the second coil (defined as at node 5 connection the first end of coil 7), a second terminal (3) coupled to the second end of the second coil (7), and where the second end of the capacitor (connected to node 5) is coupled to the second end of the first coil.

Claims 16 and 19:

Where the third terminal (2 or 4) is coupled to the first end of the capacitor (8).

Claim 22:

Where the induction of the mutually coupled windings generates a voltage that counteracts a voltage due to the equivalent series inductance of the capacitor (where resonance provides cancellation, discussed in the reasons for rejection of claim 1 above).

Claim 27:

Veisz et al. shows coupling a circuit (coupled windings 6,7 and/or associated circuitry shown in Figs. 5 and 8) including discrete magnetically coupled windings (6, 7) to a capacitor (8) having first and second ends; and selecting a mutual inductance of the coupled windings to nullify an inductance of the capacitor electrical path (inherent where resonance is shown by Veisz et al., thus inherently selecting L and C values for resonance), where the method is inherent by the circuit and circuit response of Veisz et al.

Claim 28:

Further including modeling the winding circuit with a T model having a first leg, a second leg and a third leg where the third leg is coupled to the capacitor (Figs. 1, 8, 12 – 15).

Claim 32:

Where the coupled windings are discrete (abstract).

Claim 33:

Where the coupled windings are integrated with the capacitor (where the term integrated is broad, where Veisz et al. shows the discrete coupled windings and discrete capacitor combined to form the resonant filter, thus integrated, discussed in the reasons for rejection of claim 3 above).

Claim 38:

A capacitive element (8) and a circuit (discussed in the reasons for rejection of claim 1 above), the circuit including discrete magnetically coupled windings for nullifying

the effect of an equivalent series inductance of a path through the capacitive element (e.g. resonance, discussed in the reasons for rejection of claim 1 above).

Claim 39:

Where the coupled windings are discrete (abstract).

Claim 40:

Where the coupled windings are integrated with the capacitor (where the term integrated is broad, where Veisz et al. shows the discrete coupled windings and discrete capacitor combined to form the resonant filter, thus integrated, discussed in the reasons for rejection of claim 3 above).

Claim 43:

Where the coupled windings include a structure having magnetic cores (17 – Fig. 16 and iron core – col. 2, line 61, discussed in the reasons for rejection of claim 10 above).

Claim 68:

A capacitor (8) having first and second ends; a circuit coupled to the capacitor the circuit including magnetically coupled windings for providing capacitor path inductance cancellation (discussed in the reasons for rejection of claim 1 above) over frequency (resonance at frequency shown by graphs).

Claim 69:

A capacitor (8) having first and second ends; a circuit coupled to the capacitor the circuit including magnetically coupled windings to generate a voltage for canceling capacitor path inductance (where canceling capacitor path inductance is discussed in

the reasons for rejection of claim 1 above; where magnetically coupled windings generating voltages is inherent where resonant frequency response is shown and further illustrated in art recognized coupling by magnetic core in Fig. 15; and where Veisz et al. teaches adjacent bifilar windings – col. 4, thus inherent magnetically coupled).

Claims 1 – 3, 15 – 17, 19, 22, 24, 27, 28, 32, 33, 35, 38 – 40, 48, 50, 51, 53, 56, 57, 67 – 72, 75 and 77 are rejected under 35 U.S.C. 102(b) as being anticipated by Hamill et al. (A 'Zero" Ripple Technique Applicable To Any DC Converter), prior art disclosed by the Applicant.

Claim 1:

Hamill et al. (Fig. 1) shows a capacitor (C) having first and second ends and a circuit coupled to the capacitor (Fig. 6) the circuit including discrete magnetically coupled windings (Lac, Ldc – Fig. 1) such that the magnetic induction of the discrete magnetically coupled windings provides capacitor path inductance cancellation (page 1167 – 9; where Ls resonates with C giving the vertical leg a zero transmission).

Claim 2:

Where the coupled windings are discrete (1165 – I.; where a pair of coupled inductors and blocking capacitor are discussed).

Claim 3:

Where the coupled windings are integrated with the capacitor (where the term integrated is broad, where Hamill et al. shows the discrete coupled windings and discrete capacitor combined to form the resonant filter, thus integrated).

Claims 15 and 17:

Where the coupled windings include first (Lac) and second (Ldc) coils and a first terminal (ir) coupled to a first end of the first coil and a first end of the second coil (defined as the node connection of Lac and Ldc), a second terminal (iq) coupled to the second end of the second coil, and where the second end of the capacitor (C) is coupled to the second end of the first coil.

Claims 16 and 19:

Where the third terminal (other than in or iq) is coupled to the first end of the capacitor (C).

Claim 22:

Where the induction of the mutually coupled windings generates a voltage that counteracts a voltage due to the equivalent series inductance of the capacitor (where resonance provides cancellation, discussed in the reasons for rejection of claim 1 above).

Claim 24:

Where the coupled windings have a mutual inductance greater than one of the self inductances (1166 – 2; where Lc = Ldc - M).

Claim 27:

Hamill et al. shows coupling a circuit (coupled windings Lac, Ldc and/or associated circuitry shown in Fig. 6) including discrete magnetically coupled windings to a capacitor (C) having first and second ends; and selecting a mutual inductance of the coupled windings to nullify an inductance of the capacitor electrical path (wher Hamill teaches the resonant or null condition, discussed in the reasons for rejection of claim 1 above).

Claim 28:

Further including modeling the winding circuit with a T model having a first leg, a second leg and a third leg where the third leg is coupled to the capacitor (Figs. 1, 5, 6).

Claim 32:

Where the coupled windings are discrete (1165 – l.).

Claim 33:

Where the coupled windings are integrated with the capacitor (where the term integrated is broad, where Hamill et al. shows the discrete coupled windings and discrete capacitor combined to form the resonant filter, thus integrated, discussed in the reasons for rejection of claim 3 above).

Claim 35:

Where the mutual inductance of the coupled windings is larger than the self inductance of one of the windings (1166 – 2; where Lc = Ldc – M; discussed in the reasons for rejection of claim 24 above).

Claim 38:

A capacitive element (8) and a circuit (discussed in the reasons for rejection of claim 1 above), the circuit including discrete magnetically coupled windings for nullifying the effect of an equivalent series inductance of a path through the capacitive element (e.g. resonance, discussed in the reasons for rejection of claim 1 above).

Claim 39:

Where the coupled windings are discrete (discussed in the reasons for rejection of claim 1 above).

Claim 40:

Where the coupled windings are integrated with the capacitor (where the term integrated is broad, where Hamill et al. shows the discrete coupled windings and discrete capacitor combined to form the resonant filter, thus integrated, discussed in the reasons for rejection of claim 3 above).

Claim 48:

Where the mutual inductance of the coupled windings is larger than the self inductance of one of the windings (1166 – 2; where Lc = Ldc – M; discussed in the reasons for rejection of claim 24 above).

Claim 50:

Hamill et al. (Fig. 5) shows a first (Lin) and second (Lout) pair of substantially coupled conductors (where Fig. 5 of Hamill et al. is an embodiment of Fig. 1, Fig. 1 having an equivalent circuit shown in Fig. 2; where the windings are capacitively coupled 1168 – F., e.g. inter-winding capacitance of each inductor winding as is well-known in the art and magnetically coupled to each other) such that the magnetic

induction of the second pair of conductors serves to cancel the effects of the inductance of the first pair of capacitively coupled conductors (e.g. zero ripple converter).

Claim 51:

Where each of the conductors in the second pair of conductors (Lout) is electrically coupled to a first terminal (Vin), a first conductor of the second pair of conductors is electrically coupled to a second terminal (Vout), a second conductor of the second pair of conductors is electrically coupled to a first conductor of the first pair (where all conductors are electrically coupled to each terminal and each other), and a second conductor of the first pair of conductors is electrically coupled to a third terminal (Lb with respect to equivalent circuit in Fig. 2).

Claim 53:

Where Hamill et al. shows magnetic coupling, e.g. flux between the first and second pairs of conductors (Fig. 5d).

Claim 56:

A first subcircuit (Lin) and a second subcircuit (Lout), the second subcircuit coupled to the first subcircuit, the second subcircuit including a discrete magnetically coupled windings (discussed in the reasons for rejection of claim 1 above) for nullifying the effect of an equivalent series inductance of a path through the first subcircuit (where the null condition is also discussed in the reasons for rejection of claim 1 above).

Claim 57:

Where the first subcircuit includes a capacitor (Fig. 6a, b).

Claims 67 and 71:

A capacitor (C) having first and second ends; a circuit coupled to the capacitor the circuit including discrete magnetically coupled windings to induce a voltage that cancels voltage due to capacitor path inductance (where canceling capacitor path inductance is discussed in the reasons for rejection of claim 1 above; where magnetically coupled windings generating voltages is inherent where resonant frequency and null condition is taught – 1167 D., thus canceling capacitor path voltages).

Claim 68:

A capacitor (C) having first and second ends; a circuit coupled to the capacitor the circuit including magnetically coupled windings for providing capacitor path inductance cancellation (discussed in the reasons for rejection of claim 1 above) over frequency (inherent where resonance occurs at a given frequency).

Claim 69:

A capacitor (C) having first and second ends; a circuit coupled to the capacitor the circuit including magnetically coupled windings to generate a voltage for canceling capacitor path inductance (where canceling capacitor path inductance is discussed in the reasons for rejection of claim 1 above; where magnetically coupled windings generating voltages is inherent where resonant frequency and null condition is taught – 1167 D.; discussed in the reasons for rejection of claim 67 above).

Claim 70:

A capacitor (C) having first and second ends and having a capacitive impedance and a parasitic inductive impedance; and a circuit coupled to the capacitor the circuit

including discrete magnetically coupled windings to cancel the parasitic impedance (where canceling capacitor path inductance is discussed in the reasons for rejection of claim 1 above; where resonant frequency and null condition is taught – 1167 D.; discussed in the reasons for rejection of claim 67 above, thus accordingly where the impedances are also cancelled due to the null condition).

Claim 72:

A capacitor (C) having first and second ends; a circuit coupled to the capacitor the circuit including magnetically coupled windings for providing capacitor path inductance cancellation (discussed in the reasons for rejection of claim 67 above), where the coupled windings have a mutual inductance greater than one of the self inductances (discussed in the reasons for rejection of claim 24 above).

Claims 75 and 77:

Coupling an inductively coupled winding circuit to a capacitor for nullifying an inductance of the capacitor electrical path (see claim 67); and setting the mutual inductance of the coupled windings larger than the self inductance of one of the windings (discussed in the reasons for rejection of claim 24 above).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4, 5, 9, 14, 20, 42, 45, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Veisz et al. or Hamill et al. in view of Fuji et al. (US 4,422,059).

Claim 4:

Veisz et al. and Hamill et al. teach the component, discussed in the reasons for rejection of claim 1 above, the component being generic represented by the circuit diagram such as shown in (Figs. 1, 3 et al. – Veisz et al.) or (Fig. 1, 2 – Hamill et al.) but does not show a specific material configuration where the coupled windings are wound on a specific well-known art recognized equivalent former such as a bobbin as is well-known in the art.

Fuji et al. shows a similar filter comprising specific well-known art-recognized equivalent materials such as a plastic formers or bobbins (11) as is well-known in the art (col. 2, line 66 and col. 3, lines 23-25).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted or used the specific well-known former in the component disclosed by Veisz et al. or Hamill et al. Such a substitution would have been a mere use of a specific well-known art recognized equivalent formers such as a plastic bobbin for winding coils thus suggesting the obviousness of the modification.

Claim 5:

Where the former is substantially non-magnetic (where the bobbin is plastic – Fuji et al.).

Claims 9 and 42:

Where the coupled windings include a structure having an air core (where it is well-known transformers on a bobbin may be air core transformers and/or having removable cores).

Claims 14 and 45:

Where the component has three terminals (where Veisz et al. shows four terminals; where it is also well-known to comprise three terminal T circuits).

Claims 20 and 46:

Where the coupled windings are wound about a package containing a capacitor (where the combined bobbin and base comprising the package contain the capacitor; Fig. 3 – Fuji et al.).

Claims 6 – 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Veisz et al. or Hamill et al. in view of Waffenschmidt et al. (US 6,529,363).

Claim 6:

Veisz et al. and Hamill et al. teach the component, discussed in the reasons for rejection of claims 1 and 38 above, the component being generic represented by the circuit diagram such as shown in Figs. 1, 3 et al. but does not show a specific material configuration where the coupled windings are formed from a well-known art recognized equivalent material such as foil as is well-known in the art.

Waffenschmidt et al. shows a capacitor and transformer where the coupled windings are formed from specific well-known art recognized equivalent materials such as foil as is well-known in the art.

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to have substituted the generic windings disclosed by Veisz et al. or Hamill et al. with the specific foil windings disclosed by Waffenschmidt et al. Such a modification would have been a mere substitution of well-known art recognized equivalent materials such as foil as is well-known in the art thus suggesting the obviousness of the modification.

Claims 7 and 41:

Where the coupled windings are formed on a flexiable material (e.g. foil Waffenschmidt et al.).

Claim 8:

Where the coupled windings are formed on a printed circuit board (where Waffenschmidt et al. discloses an alternative arrangement such as on a board – col. 3, lines 64-67).

Claims 21, 26, 29, 30, 37, and 47, are rejected under 35 U.S.C. 103(a) as being unpatentable over Veisz et al. or Hamill et al. in view of Uchida et al. (US 6,476,689), prior art disclosed by the Applicant.

Claim 21:

Veisz et al. and Hamill et al. shows the component, discussed in the reasons for rejection of claim 1 above, but is silent with respect to a specific teaching for a negative equivalent inductance in series with the capacitor or a voltage counteracting the voltage due to the equivalent series inductance of the capacitor.

Uchida et al. shows a similar component comprising a well-known art-recognized equivalent integrated package as opposed to the discrete components of Viesz et al. and Hamill et al. where Uchida et al. teachers the coupled windings generating a negative equivalent inductance in series with the capacitor (Fig. 4 and col. 6, lines 28-50; thus inherently comprising negative voltage).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the generic component disclosed by Veisz et al. or Hamill et al. with the specific negative inductance disclosed by Uchida et al. Such a modification would have realized the advantageous benefit of providing an LC filter having an attenuation effect up to a high frequency by suppressing series resonance (Uchida et al. – col. 6, lines 42-50 and col. 8, lines 28-44); further where Uchida et al. shows two embodiments of both negative and positive inductance (Figs. 4 and 7); where Veisz et al. shows alternative LC characteristics such as a notch filter (Figs. 1 and 9), low pass filtering (Fig. 11), high pass filtering (Fig. 4), and bandpass filtering (Figs. 13 and 15) with adjustable coupling (17 – Fig. 16); and further where both Veisz et al. and Hamill et al. show similar T circuits with resonant capacitors thus suggesting the obviousness of the modification.

Claim 26:

Where the coupled windings have a mutual inductance that is substantially of the same magnitude as the equivalent series inductance of the capacitor plus any interconnect inductance (where Uchida et al. teaches adjusting coupling to cancel ESL – col. 6, lines 42-50).

Claim 29:

Providing the third leg with a negative inductance (Uchida et al. – Fig. 4).

Claim 30:

Including modeling the capacitor as having a capacitance and an equivalent series inductance, which is canceled by the negative inductance of the third leg of the T model (Uchida et al. – Fig. 4, discussed in the reasons for rejection of the claims above).

Claims 37 and 47:

Where the magnitude of a mutual inductance of the coupled windings substantially equal to the equivalent series inductance of the capacitor path (Uchida et al. – col. 8, lines 42-50, discussed in the reasons for rejection of the claims above).

Claims 18, 23, 31, 52 and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Veisz et al. or Hamill et al. in view of Nguyen (US 5,148,360).

Claims 18, 23 and 52:

Veisz et al. and Hamill et al. show the component, discussed in the reasons for rejection of claim 1 above, but only shows a generic T circuit representation of inductive windings with a tapped capacitor and is silent for the winding comprising a single winding.

Nguyen shows a similar component comprising alternative embodiments of a single winding with a shunt tapped capacitor (Figs. 1 and 2) or two single coupled windings with a shunt tapped capacitor (Fig. 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the generic windings disclosed by Veisz et al. or Hamill et al. with a single tapped winding shown by Nguyen. Such a modification would have been a mere substitution of well-known art recognized equivalent windings where a single tapped winding would be equivalent to two separate coupled windings with a tap; further where it does not appear any critically is given to a single continuous tapped winding versus connected windings such as shown by Veisz et al. or Hamill et al., thus suggesting the obviousness of the modification.

Claims 31 and 74:

A selection of a connection point of the coupled winding circuit by finding the point that minimizes the magnitude of the output signal when an input signal is applied (where Nguyen shows a similar LC resonant filter with tapped capacitor and ESR, where Fig. 2 shows alternative tap points to filter the current of higher order harmonics – col. 6, lines 26-40, thus minimizing the magnitude of the output signal, e.g. current).

Claims 58 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamill et al. in view of Smith et al. (U.S. Patent No. 5,694,297).

Claims 58 and 59:

Hamill et al. teaches the electrical circuit comprising the first and second subcircuit, discussed above in the reasons for rejection of claim 56 above, but are silent where the coupled windings are formed on a printed circuit board (claim 58) and where the coupled windings are formed on an integrated circuit (claim 59).

Smith et al. shows a similar component circuit (DC-DC switching power supply such as buck-boost, Cuk – col. 6, lines 1-22) comprising coupled windings (218 – Fig. 3) are formed on a printed circuit board (obvious in that power supply 200 is formed in an integrated circuit) and where the coupled windings are formed on an integrated circuit (102).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the component disclosed by Hamill et al. with the substrate and integrated circuit disclosed by Smith et al. Such a modification would have realized the advantageous benefit of providing high speed, high current demand IC chips and improving the packing density of the system and reducing thermal dissipation (Smith et al. – col. 2, lines 61-65) thus suggesting the obviousness of the modification.

Claims 60 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamill et al. in view of Waffenschmidt et al.

Claim 60 and 61:

Hamill et al. teaches the circuit comprising the first and second subcircuit, discussed in the reasons for rejection of claim 56 above, but is silent where the coupled windings are formed using a printing process (claim 60) or where the coupled windings are formed on a flexible material (claim 61).

Waffenschmidt et al. teaches a similar circuit component where the component the coupled windings are formed using CVD (col. 2, lines 11-17) and where the coupled windings are formed on a flexible material (foil – col. 1, lines 31-36).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the circuit disclosed by Hamill et al. with the specific coil forming disclosed by Waffenschmidt et al. Such a modification would have been a mere physical implementation of the circuit component in a working device as is well-known in the art thus suggesting the obviousness of the modification.

Regarding the limitation "printing process" in claim 60, it is the position of the Examiner that the limitation is not given patentable weight in the product claim. Waffenschmidt et al. discloses a well-known art-recognized equivalent method of forming windings such as CVD. Regarding "product-by-process" claims, it should be noted that a "product-by-process" claim is directed to the product per se, no matter how such a product was made. It has been well established by the Courts that it is the patentability of the final product per se which must be determined in a "product-by-process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product-by-process" form or not.

See *In re Hirao*, 190 USPQ 15 at 17 (footnote 3); *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessman*, 180 USPQ 324, *In re Avery*, 186 USPQ 161; *In re Marosi et al.*, 218 USPQ 289; and in particular *In re Thorpe*, 227 USPQ 964. It

should be noted that the applicant has the burden of proof in such cases, as the above case law makes clear.

Response to Arguments

Applicant's arguments with respect to claims 1 – 10, 14 – 33, 35 – 43, 45 – 61, and 67 – 78 have been considered but are moot in view of the new ground(s) of rejection.

The Examiner acknowledges the interview with David Perreault and Paul Durkee. The rejections contained in the office action of record were discussed, however no agreement was reached as a result of the interview. The prior art of record was discussed as well as what the Applicant considered their inventive step, however it was the position of the Examiner that the references of record anticipated the claims as presented because the prior art disclosed resonance and that the claims as presented did not appear to overcome the prior art of record. No agreement was reached as a result of the interview.

Allowable Subject Matter

Claims 25, 36, 49, 73, 76 and 78 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dean O Takaoka whose telephone number is (571) 272-1772. The examiner can normally be reached on 8:30a - 5:00p Mon - Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dean Takaoka

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October 22, 2004